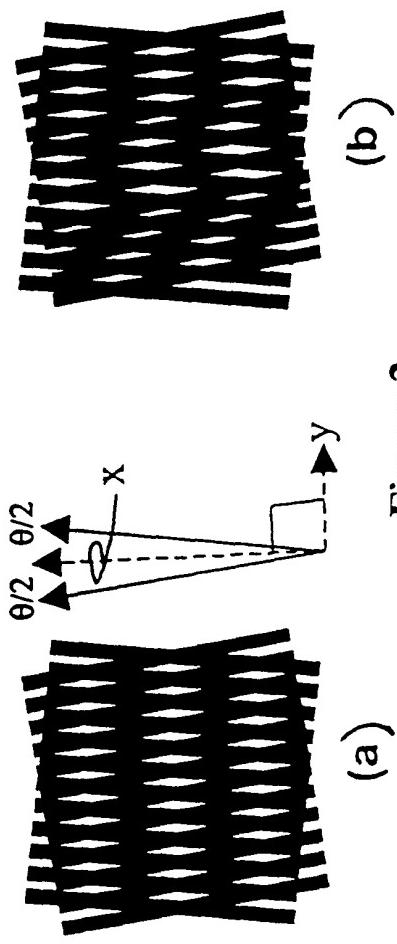


Figure 1

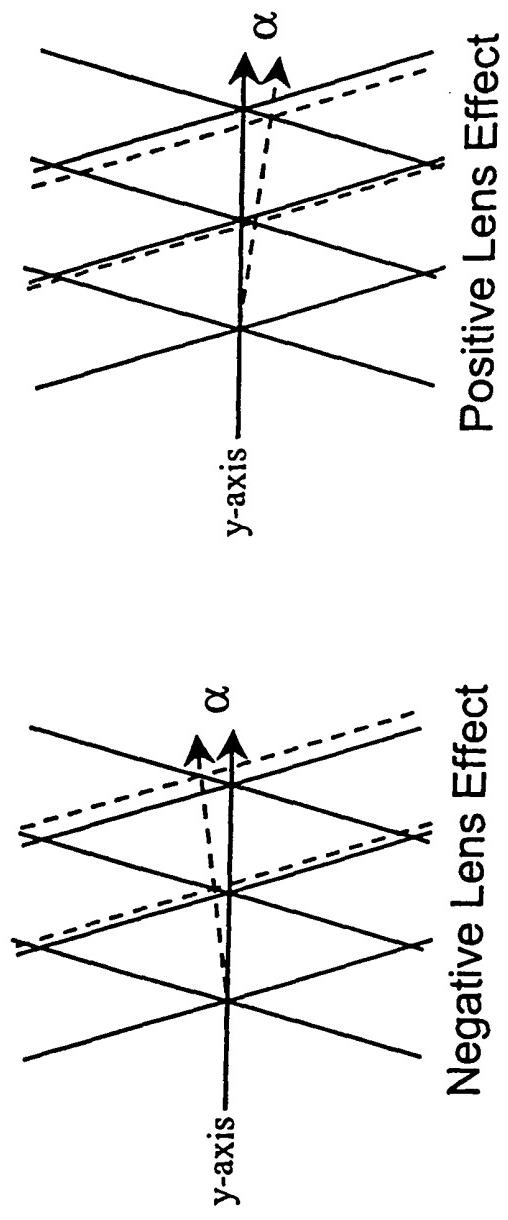
1φ



(a)

(b)

Figure 2



8

Positive Lens Effect

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Negative Lens Effect

Figure 3

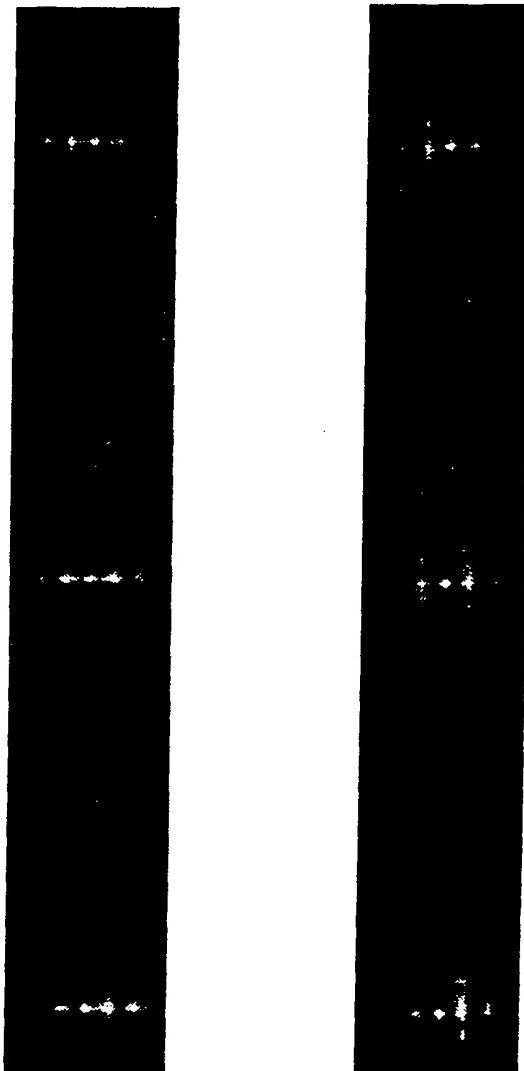
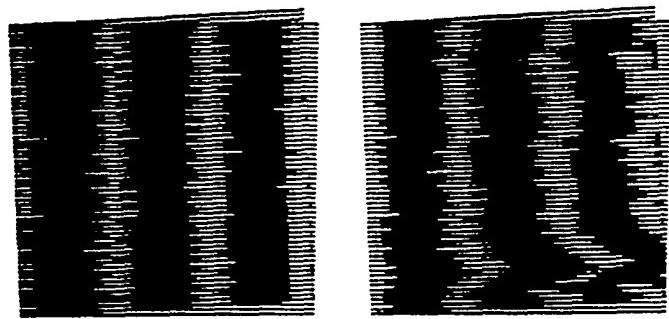
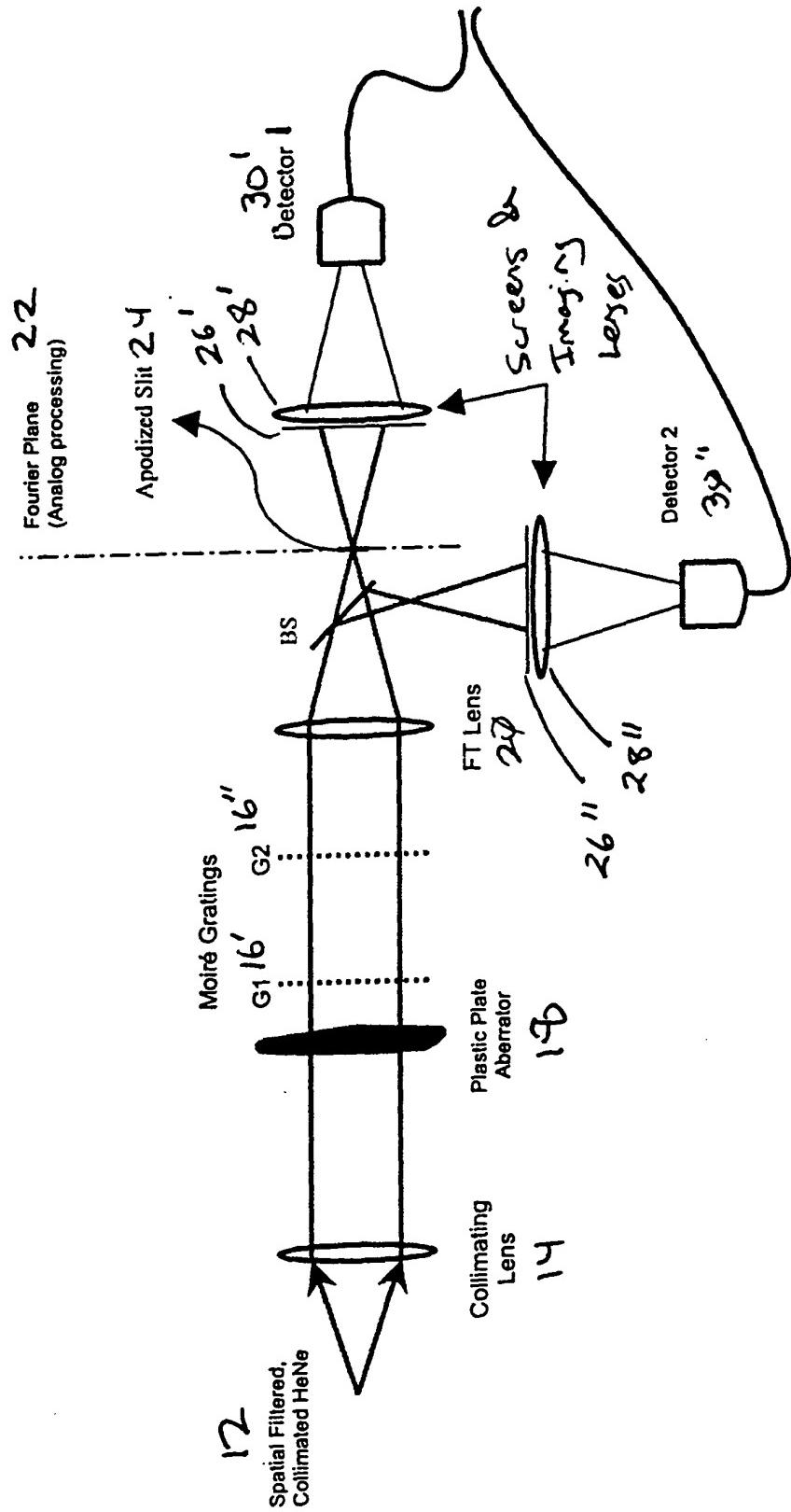


Figure 4



(a)

(b)



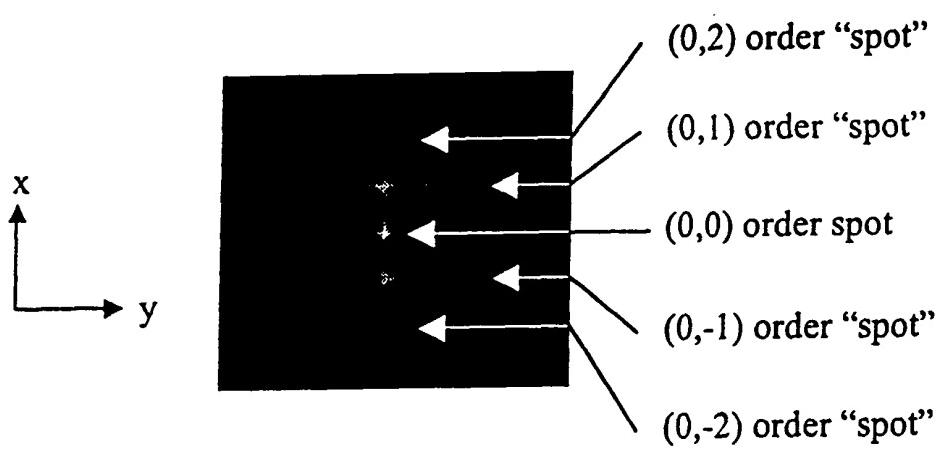


Figure 6

These frequency components at the Fourier plane...
...produce this moiré fringe pattern In the image plane

Effect of the slit in the Fourier plane, on the image plane.

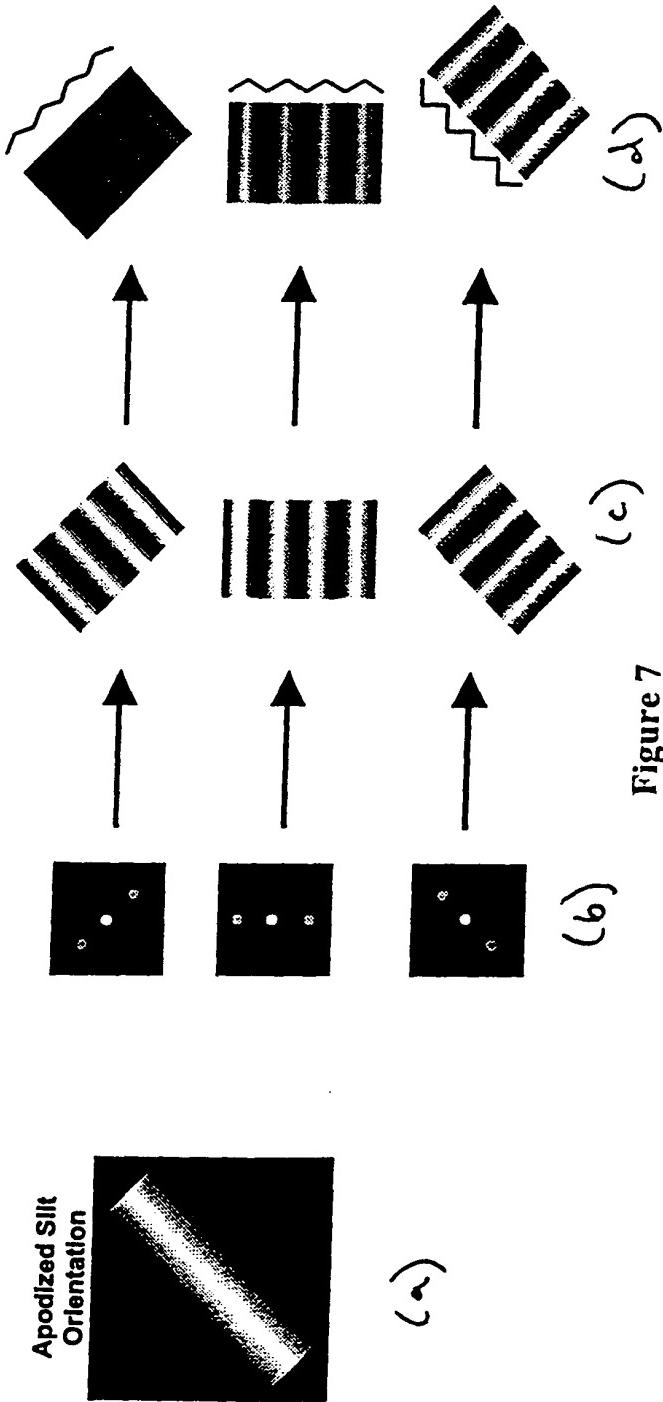
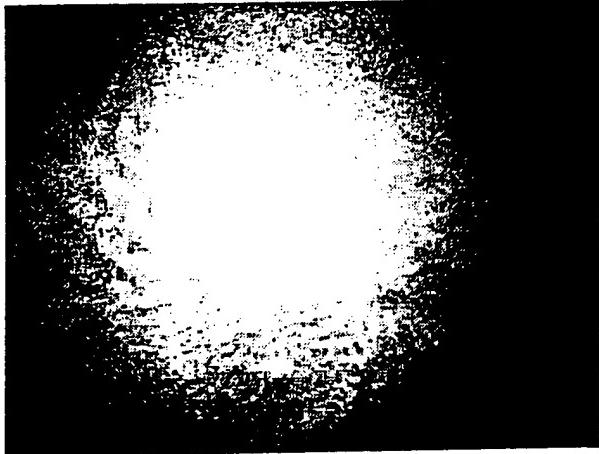
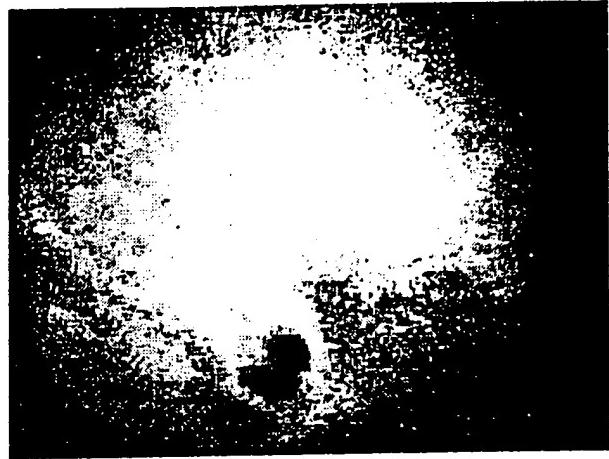


Figure 7



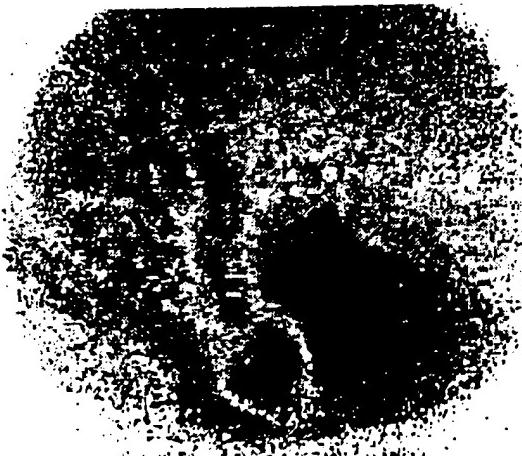
- Moiré Deflectogram – Air Slit**
- Camera does not resolve fringes.
 - Imperfect gratings cause secondary fringes.

(a)



- Moiré Deflectogram Apodized Slit**
- Very different intensity pattern.

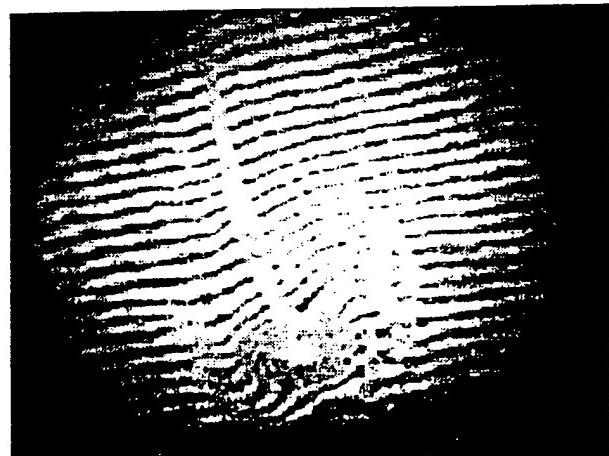
(b)



Normalized Pattern

- All fringe slope information across the profile has equal weighting.
- Proportional to 2nd wavefront derivative.

(c)



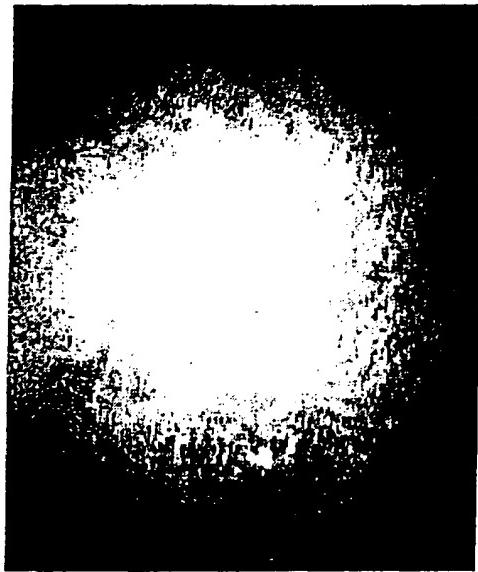
**Macroscopic Fringe Deflectogram
for Comparison**

- Typical deflectogram (camera resolves fringes)

(d)

Figure 8

TOP SECRET - SOURCE 42260



Moiré Deflectogram -- Air Slit

- Camera does not resolve fringes.
- Imperfect gratings cause secondary fringes.

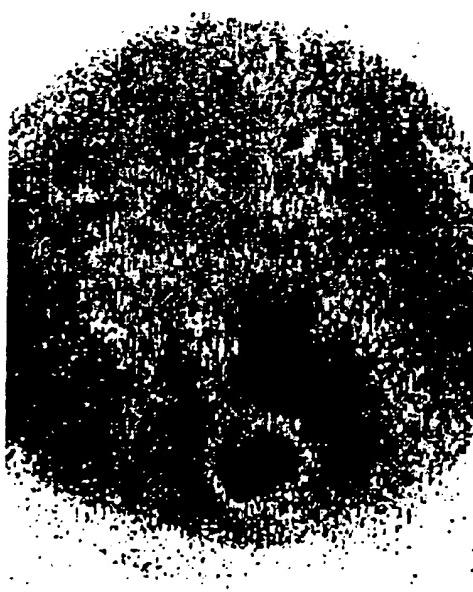
(a)



Moiré Deflectogram -- Apodized Slit

- Very different intensity pattern
- Looks like a 3D surface illuminated from the upper left.

(b)



(c)

Normalized Pattern

- All fringe slope information across the profile has equal weighting.

Figure 9